HIGHLANDS ACID PIT

EPA REGION 6

CONGRESSIONAL DISTRICT 25

Harris County

TEXAS

EPA ID# TXD980514996
Site ID: 0602505

Updated: April 28, 2005
Next Update: September 2005

Site Description

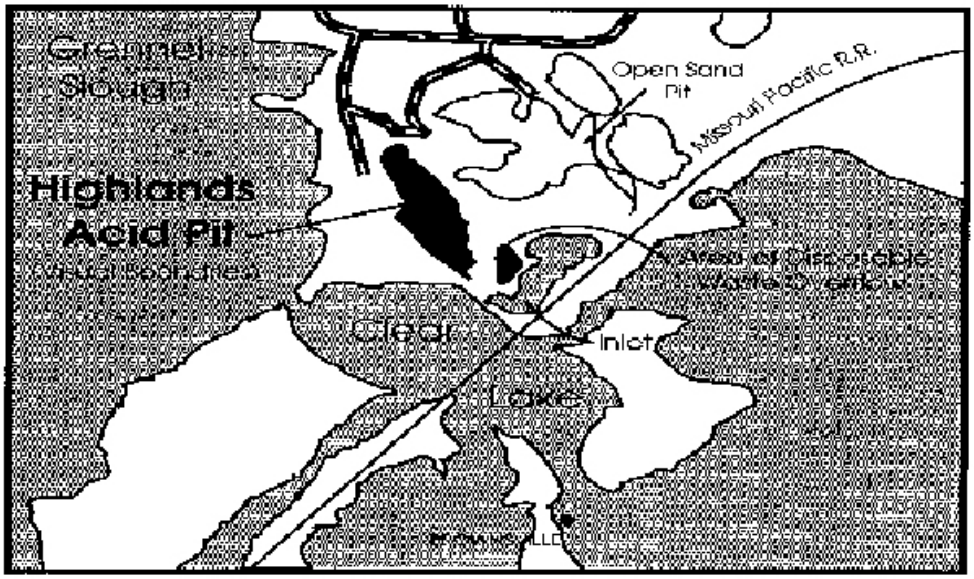
Location:
- 15 miles east of Houston, north of I-10.
- 1-1/2 miles west of Highlands, Harris County, Texas.

Population: Approximately 5,000 people.

Setting:
- The nearest residence and drinking water well is 2,000 feet from the site.
- The six-acre site is located on a peninsula in the San Jacinto River, surrounded on three sides by water.
- The site is currently fenced with a grass cover on replacement fill material.

Hydrogeology:
- The site is prone to flooding, and is within 10-year river flood-plain basin.
- Soils are sandy, approximately 25 ft. deep, with 30 ft. of clay below that.
- A shallow aquifer in the upper sand is contaminated, and connected to surface water; the next lower aquifer is not contaminated.

Site Map and Diagram



Wastes and Volumes

- The principal pollutants at the Highlands Acid Pits site fall into two categories:
    1) Organic compounds: Toluene, benzene, phenol, xylenes.
    2) Inorganic compounds: Sulfate, manganese, arsenic, cadmium, lead, beryllium.
- Waste sludge has mixed with soil and leached contaminants into the upper aquifer at concentrations above Maximum Contaminant Level (MCL) values in aquifer.
- Approximately 22,200 cubic yards of waste and soil (33,000 tons) were removed during cleanup.

Site Assessment and Ranking

NPL LISTING HISTORY
Site HRS Score: 37.77
Proposed Date: 7/30/82
Final Date: 9/08/83
NPL Update: No. 1

The Remediation Process

Site History:

- Industrial waste sludges were deposited in on-site pits in the early 1950s.
- In 1961, the site flooded due to Hurricane Carla, possibly causing a fish kill in Clear Lake.
- In May 1984, EPA constructed a fence around the pit to prevent further illegal dumping and to protect
monitoring wells from vandalism.
- In July and August 1985, the site was vandalized. EPA repaired the fence and posted warnings.

Health Considerations:

- The nearest drinking water well is within 2,000 feet of the site, creating a potential for human ingestion of
contaminated ground water.

Other Environmental Risks:

- Heavy metals and organics emitted strong odors during hot weather prior to remediation.
- Site contaminants have been discovered in run-off and ground water.
- The area is subsiding, and portions of the site are under water.

Record of Decision

Signed: June 25, 1984 (Source)
Signed: June 26, 1987 (Groundwater)

Source Control:

- Extensive excavation of waste and heavily contaminated soil (depth of excavation approximately 8 feet).
- Off-site disposal of excavated material.
- Back-fill pit, then grade, seed, and fence the area.

Ground Water:

- "No Action" - no health threats are anticipated once the Source Control remedy is complete. Therefore,
  a "No Action" remedial alternative was appropriate for the Ground Water cleanup phase.
- Despite its name, the "No Action" remedy includes installation of ground water monitoring wells, and
  a 30 year monitoring program for both ground and surface water.

Other Remedies Considered	Reason Not Chosen
----------Source Control----------	
1. "No Action"	**Did not meet statute**
2. Site Management	**Excessive costs, floodways encroachment, incompatible with desired land uses.**
3. Infiltration Control	**Technical uncertainties due to cracking and deterioration.**
4. Excavation to Clay	**Costs six times that of extensive Layer Excavation Excavation alternatives without providing many additional benefits.**
5. Waste Encapsulation	**Technical uncertainties due to cracking deterioration. Unreliability under site hydrogeologic conditions and type of Waste materials.**
6. RCRA Equivalent Landfill On-Site	**Excessive cost with few additional benefits.**

Other Remedies Considered	Reason Not Chosen
----------Ground Water----------	
1. Slurry Wall Containment	**Unreliable under site geologic and hydrogeologic conditions.**
2. Recovery and Deep Well Disposal	**Off-site Noncompliance with Land Restrictions for treatment of contaminations in water and sludge.**
3. Recovery, Biological Treatment	**Partial On-site treatment would result in Discharge, and Off-Site Disposal potential exposure risk due to site location characteristics.**
4. Carbon Treatment	**Partial Discharge, on site treatment would result in potential and Off-site Disposal exposure risk due to site location characteristics.**

Community Involvement

- Community Involvement Plan: Developed 12/82, revised 5/84, and again in 12/87
- Open houses and workshops: 4/91; EPA and Texas Commission on Environmental Quality (TCEQ), formerly the Texas Natural Resource Commission (TNRCC) conducted survey with nearby residents 6/94 to assess interest.
- Proposed Plan Fact Sheet and Public Meeting: 5/84 (Source Control), 5/87 (Ground Water)
- Record of Decision(ROD) Fact Sheet: 6/84 (Source Control), 6/87 Ground Water
- Milestone Fact Sheets: 3/83, 3/87, 4/87, 7/87, 8/88 (TCEQ), 10/90, 4/91 (TCEQ), 5/94
- Citizens on site mailing list: 100
- Constituency Interest: Medium profile site, primarily due to close proximity of the Liberty Waste Disposal site not a Federal Superfund site, but still a concern to local citizens).
- Site Repositories:
  - U.S. EPA, Region 6 Library, 12th Floor, 1445 Ross Avenue, Dallas, Texas 75202
  - Texas Commission on Environmental Quality, Records Management Center, Building D, Room 190, 12100 Park 35 Circle, Austin, Texas 78753
  - Houston Central Library, Government Documents Area, 500 McKinney Street, Houston, TX 77002
  - Highlands Community Center, 604 Highlandwood Drive, Highlands, TX 77562
  - City of Houston City Hall, Citizen's Assistance Office, 900 Brazos, P.O. Box 1562 Houston, TX 77251
  - University of Houston Library, Documents Center, 4800 Calhoun, Houston, TX 77704

Technical Assistance Grant

- Availability Notice: 4/89
- Letters of Intent Received:
  1. LIFT Endowment Fund, Inc. - 2/8/90 (withdrew Letter of Intent 8/20/90)
- Application received: None
- Grant Award: N/A
- Current Status: No applicants during site study, remedy selection/design or construction phases.

Contacts

- **Remedial Project Manager (EPA):** Ernest R. Franke, PE, PLS 214-665-8521, Mail Code: 6SF-AT
- **State Contact:** (TCEQ) Bob Wucher, 512-239-2494
- **Community Involvement (EPA):** Ernest R. Franke, PE, PLS , 214-665-8521, Mail Code: 6SF-AT
- **Attorney (EPA):** James Bove, 214-665-2794, Mail Code: 6RC-S
- **State Coordinator (EPA):** Karen Bond, 214-665-6682, Mail Code: 6SF-AP
- **Regional Public Liaison (EPA):**Arnold Ondarza , 303-312-6777
- **RAC Contractor:** Tetra Tech EM, Inc. -O&F activities
- Site Currently under - State Of Texas (TCEQ) O&M Activities

Present Status and Issues

- The construction of a fence to limit access to the site lessened the actual exposure potential even though surface contamination cleanup goals were fully achieved.
- Two years of initial Operational and Maintenance (O&M) were conducted to confirm protectiveness of human health and environment through all routes of migration.

● The first five-year review was completed in June, 1996.
● The Final pump test report including tidal study was prepared by Tetra Tech, is complete and mailed to EPA and the State of Texas (TCEQ) on November 19, 1998.
● The site was under Federal Lead, RACS contract. The RACS contract began in March 1997 to add additional monitoring wells, conduct sampling and analysis for eight quarterly sampling events of which was completed as of November 2000 by a final RA Ground Water Report.
● A gas and oil well (Johnson Peace #1) was constructed during March and April, 1999 for owner, Etoco Inc. of Houston, Texas, by B & J Consultants, north of the site most northerly monitoring wells , which was authorized by the Texas Railroad Commission Permit #482755.
● The final Operation and Functional Activities Report has been submitted by Tetra Tech to EPA and copies are filed in each of the Highland Acid Pit Site Repositories.
● The State 0f Texas (TCEQ) has complete and secured EPA Approval of its O & M Plan, selected its O & M Contractor and issured notice to proceed to begin site O&M Sampling in January 2002. The site has been transferred to the State (TCEQ) for long term Operation and Maintenance.
● The Second five-year review was completed and signed September 27, 2002.
● The final closure Operation and Funtional Activities began April 2002 and field activities were completed February 28. 2003.
● The State of Texas (TCEQ) Contractor has resumed site O&M Sampling and Analysis activities.

Benefits

• Remedy construction and operation at the Highlands Acid Pits has effectively reduced risk from 22,000 cubic yards (33,000 tons) of contaminated industrial sludge.
● The San Jacinto River has been protected from offsite migration of wastes precluding fish kills similar to prior events.